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A Review: Relationship Between Mental Health and Safety Compliance Among Night Shift Manufacturing Workers

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Abstract

Night shift workers in the manufacturing industry are at high risk of experiencing mental health disorders due to work rhythms that are misaligned with the body's natural biological clock. These disorders can lead to decreased compliance with Occupational Safety and Health (OSH) procedures, which are essential for preventing workplace accidents. This study aims to examine the relationship between mental health and compliance with OSH procedures among night shift workers in the manufacturing sector through a literature review. A narrative review was conducted using 10 national and international journal articles related to shift workers' mental health and OSH compliance. Articles were retrieved from PubMed, Google Scholar, and GARUDA databases using keywords such as "mental health", "shift work", "occupational safety", and "K3 compliance". The review found a significant relationship between mental health issues—such as stress, anxiety, and fatigue—and low compliance with safety procedures. Mediating factors such as social support, safety culture, and stress management training were also found to influence this relationship. The findings suggest that mental health among night shift workers has important implications for their compliance with OSH procedures. Psychosocial-based promotive and preventive interventions are recommended to improve overall workplace safety.

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Introduction

Night shift work has become an increasingly common form of employment in the manufacturing industry. Although efficient from a production standpoint, night shift work is often associated with disruptions to circadian rhythms that affect both the physical and psychological health of workers. One of the most evident impacts is the deterioration of mental health, including chronic stress, sleep disorders, burnout, and depression (Loh. M, 2024). Recent research in China found that more than 4,000 shift workers experienced a decline in mental quality of life not only due to sleep disturbances but also as a result of unhealthy lifestyles, such as low physical activity and poor dietary habits (Liu et al., 2024). Furthermore, a systematic review in 2024 emphasized that the transition into shift work is closely related to worsening mental health and sleep quality, particularly during the early years of employment, where pre-shift conditions play a crucial role in determining the level of tolerance toward such work schedules (Harris et al., 2024).

These mental health problems lead to decreased concentration, mental fatigue, and impaired decision-making ability, which ultimately reduce workers' compliance with Occupational Safety and Health (OSH) procedures. Violations of safety procedures are known to be one of the main causes of workplace accidents in the industrial sector (Kearney, 2025). Global data show that shift workers have a 20–30% higher prevalence of mental health disorders compared to non-shift workers, with the risk of chronic insomnia reaching 40% (Eurofound, 2017; ILO, 2019). In Asia, a regional survey reported that nearly 35% of night shift workers experienced high levels of stress that affected compliance with workplace safety (Chen et al., 2020).

According to WHO (2020), good mental health reflects a state of emotional, cognitive, and social balance that enables individuals to work productively and contribute effectively in the workplace. When mental health is impaired, workers tend to neglect safety instructions, avoid using personal protective equipment (PPE), and show decreased awareness of occupational risks. Recent studies indicate that shift workers with poor sleep quality experience increased anxiety and depression, which negatively affects compliance with occupational safety and health procedures (Turner-Jones et al., 2025). A meta-analysis further emphasizes that shift work impacts mood, reduces cognitive function, and lowers safety motivation, ultimately increasing the risk of workplace accidents (Smith & Miller, 2024). Neurobiological reviews have demonstrated that chronic sleep disturbances among shift workers can lead to structural brain changes, particularly in the hippocampus, which impair alertness and decision-making related to safety (Tahmasian & Küppers, 2024). In addition, longitudinal studies have found that irregular work schedules, including night shifts, are correlated with a higher risk of depression and anxiety in midlife, significantly reducing workers' adherence to occupational safety practices (Han et al., 2023). Based on this background, the present study aims to systematically review the literature on the relationship between mental health and occupational safety compliance among night-shift workers in the manufacturing sector. With this background, the present study aims to systematically review the literature examining the relationship between mental health and OSH compliance among night shift workers in the manufacturing industry.

Methods

This study is a literature review with a narrative approach. The literature was obtained from the PubMed, Science Direct, Google Scholar, and GARUDA databases. The inclusion criteria were: (1) articles published between 2015–2025, (2) studies discussing the relationship between psychological/mental conditions and OSH compliance behavior, and (3) a focus on industrial workers with shift work systems. Articles in both English and Indonesian were included.

The selection process resulted in 10 journals that met the criteria. Data were analyzed based on study characteristics, research methods, population, variables examined, and main findings.

Results

Based on the literature review, it was found that mental health and compliance with OSH procedures among night shift workers are influenced by multiple complex risk factors, including work stress, fatigue, depression, sleep disorders, as well as social support and workplace safety culture. From the journals analyzed, 10 of the most relevant studies that met the inclusion criteria were selected for further analysis in this study.

Table 1. Systematic Review

No.	Autor / Year	Title	Methods	Results
1	Loh et al. / 2024	Translating Psychosocial Safety Climate into Real-World Practice	Organizational and individual intervention, case study (mixed approach)	PSC interventions based on commitment, communication, and participation improved the psychosocial climate and sustained workplace safety compliance
2	Zhang et al. / 2020	Effect of Burnout on Safety Behavior	Quantitative survey, regression analysis	Burnout negatively affected workers' compliance with PPE use.
3	Jung & Nam / 2021	Social Support and Compliance	Pearson correlation analysis	Positive social support improved OSH compliance
4	Park et al. / 2018	Mental Health in Manufacturing Workers	Mixed-method (survey and interviews)	Anxiety and stress increased the risk of workplace incidents.
5	Kearney et al. / 2025	Effectiveness of Toolbox Talks as a Workplace Safety Intervention	Scoping review	Toolbox talks were effective in increasing safety knowledge; challenges included worker disengagement, language diversity, and productivity pressure.
6	Schulte et al. / 2024	An Urgent Call to Address Work-Related Psychosocial Hazards	Longitudinal study	The study Stress management programs reduced OSH violations.
7	Brossoit et	The Effects of a Total Worker	Randomized	The intervention improved safety

No.	Autor / Year	Title	Methods	Results
	al. / 2023	Health® Intervention on Workplace Safety: Mediating Effects of Sleep and Supervisor Support for Sleep	controlled tria	behaviors and safety motivation, and reduced workplace accidents through better sleep quality and supervisor support for sleep
8	Inoue et al. (2025)	Moderating Effect of PSC on Job Demands & Distress Among Japanese Employees	Studi cross-sectional (kuantitatif)	PSC moderated the relationship between job demands and psychological distress—the higher the PSC, the stronger its protective effect against stress.
9	Rahmawati / 2022	Organizational Culture and OSH	Correlational study	The study Stress and negative organizational culture decreased compliance among shift workers.
10	Lin et al. / 2017	Evaluation of Psychosocial Interventions	Pre-post test design	Interventions improved OSH compliance by up to 25%.

Discussion

This literature review shows that night shift workers are highly vulnerable to psychological disorders, which ultimately reduce compliance with occupational safety procedures. Sleep disturbances, prolonged stress, burnout, and social pressures are the main factors that affect workers' consistency in following OSH rules and procedures. Noncompliance with safety procedures is likely to occur due to reduced cognitive function, emotional disturbances, and blunted risk perception resulting from unstable mental conditions.

In various studies, the relationship between psychological conditions and workplace safety is described as a complex reciprocal connection. Workers with good psychological health are more capable of consistently understanding and implementing safety procedures. Conversely, when psychological pressure increases, the likelihood of OSH violations also rises. This is in line with the safety motivation theory, which states that safety perception and the intention to engage in safe behavior depend on workers' psychological condition and social support in the workplace.

The role of the organization is crucial in creating a work environment that supports workers' mental health. The implementation of circadian-friendly work systems, provision of rest areas, psychosocial interventions, and stress management training have proven effective in reducing stress levels and enhancing safety awareness. A positive organizational culture, good team communication, and participatory supervision also serve as protective factors against psychological disorders among night shift workers.

Thus, the findings of this review provide strong evidence that interventions targeting workers' mental health, particularly night shift employees, must be an integral part of Occupational Safety and Health Management Systems (OSHMS) in the manufacturing industry.

1. Mental Disorders in Night Shift Workers

   Night shift workers experience circadian rhythm disruption leading to sleep disorders, chronic fatigue, and prolonged stress. Schulte (2024) found that night shift workers have twice the risk of psychological disorders compared to day workers
2. Mental Health and OSH Compliance

   Compliance with OSH procedures is closely linked to workers' mental health. Kearney (2025) reported that high work stress reduces compliance with safety procedures. Loh, M (2024) emphasized that workers' safety perceptions and motivation are strongly influenced by their psychological condition.
3. Mediating Factors

   Several studies highlight the role of social support, stress management training, and organizational culture in strengthening the relationship between mental health and OSH behavior (Loh, M (2024); Brossoit, 2023). Workers who feel supported by supervisors and colleagues are more likely to comply with safety procedures.
4. Policy and Intervention Implications

   The findings suggest the need for psychosocial-based interventions such as workplace mental wellness programs, healthy shift rotation planning, counseling services, and safety training integrated with psychological aspects.

Conclusion

Disrupted mental health among night shift workers has been shown to have a direct impact on reduced compliance with OSH procedures. Therefore, strengthening workplace mental health promotion

programs is a key strategy for improving occupational safety in the manufacturing sector. Collaboration between company management, OSH teams, and occupational psychologists is essential to create a healthy and safe work environment.

These findings are consistent with the WHO Healthy Workplace Framework and best practices from the healthcare and aviation industries, where stress management programs, healthy shift rotations, and psychosocial support have been proven to reduce fatigue and improve safety compliance. By adapting similar intervention models, the manufacturing sector can develop more effective preventive strategies to protect workers' mental health while simultaneously reinforcing a strong safety culture.

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